

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of:)	
)	
Modernizing the E-rate)	WC Docket No. 13-184
Program for Schools and Libraries)	

**COMMENTS OF THE MISSOURI RESEARCH AND EDUCATION NETWORK
RELATED TO THE E-RATE 2.0 NOTICE OF PROPOSED RULEMAKING**

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APPENDIX A – MORENET CIRCUITS

I. Introduction

1. The Missouri Research and Education Network (MOREnet) was established in 1991 within the University of Missouri System with the primary purpose to develop, maintain and cultivate applications for electronic interchange in support of the educational research and service missions of its members. MOREnet collaborates with the Missouri Department of Elementary and Secondary

Education (DESE), the Secretary of State's Office, the Missouri Office of Administration and the Missouri Department of Higher Education to deliver secure, reliable and robust Internet connectivity to public K-12, publicly funded libraries and higher education member organizations. MOREnet reduces the cost of connectivity, support and shared resources by creating a common network and support structure for all research and education entities in the state. Through these collaborations, MOREnet has rapidly grown in membership and continues to represent an overwhelming majority of Missouri public K-12 school districts, publicly funded libraries and higher education institutions.

2. MOREnet is extremely grateful for member recognition of quality customer service, satisfaction and MOREnets' role as a trusted partner in education. MOREnet supports its membership with an outstanding network, which provides the full Committed Information Rate (CIR) and full symmetrical access on all connections. This means both the upload and download speeds allow optimal performance on high bandwidth applications, such as videoconferencing, online curriculum and testing, student information systems and 1:1 initiatives.

3. MOREnet has participated in the E-rate program since its inception in 1998. Our latest application for funding year 2013 includes 449 school districts, 14 private schools and 248 libraries. The MOREnet consortium application represents 86% of all eligible public school districts and 95% of all eligible public libraries in the State of Missouri.

II. Position Overview

4. The NPRM discusses the ConnectedED initiative, which seeks to connect schools and libraries to next generation high-capacity broadband and to provide high-capacity wireless connectivity within those schools and libraries within five years. NPRM at ¶7. Meeting the ConnectedED initiative

targets will require tremendous effort and coordination among multiple stakeholders. MOREnet and other Research and Education networks bring a wealth of knowledge, expertise, and not-for-profit motivation that significantly contributes to the nation's Internet Access availability and use. Continued support and increased funding to R&E networks, including consortia applicants, supports the goals of the E-rate program, is good for schools, libraries and end users, and will contribute to meeting the ConnectED targets.

III. Consortium benefits to cost effectiveness of E-rate funds

5. The Commission asks whether there are geographic or other barriers preventing schools and libraries from taking advantage of consortium purchasing. NPRM at ¶181. Broadband access is not ubiquitous throughout the state of Missouri. Competition among broadband providers does exist in parts of the state where consumer demand warrants it. Unfortunately, between July 2011 and June 2012, 85% of requests for bids for broadband access at K-12 and library sites resulted in either one bid or no bids. From July 2012 to June 2013 there was significant improvement, but 30% of requested bid proposals still resulted in one or no bids. It is difficult to deduce any meaning to the reduced number of one or no bids. Bid locations are systematically based on demand with no relationship from one year to the next. In both 2012 and 2013 more than 76% of the one or no bid response sites are classified as rural, which may contribute to the lack of broadband competition. Regardless, it is evident from bid results that competition for broadband service does not exist in many parts of the State. With this in mind, MOREnet bids typically include multiple site locations, but are always awarded by site. This affords providers the opportunity to respond to one or more sites independently and aggregate price discounts. The MOREnet consortia bid also details exactly where the demand for broadband exists and the quality of services required, thus creating incentive for providers to extend market coverage and enhance profitability.

6. The Commission seeks comment on policies to encourage E-rate applicants to leverage regional WANs and R&E networks. NPRM at ¶190. While there are many school and library districts with sufficient technical resources to support their connectivity, support, and procurement needs, budget cuts and performance priorities have reduced technical resources below critical levels for many schools and libraries. Over the years, R&E networks have stepped into the gap with technical support, objective advice, centralized services, informed volume purchasing and consortium E-rate procurement and filing to ensure schools and libraries receive the highest value for their limited technical budgets.

7. E-rate rules generally preclude a single organization from receiving E-rate funding for both procuring eligible services and providing or enhancing those same services. In reality, several larger R&E networks file as a consortium and provide or enhance services but are compelled to forego E-rate discounts for otherwise eligible services to schools and libraries to retain the E-rate discounts. USAC guidelines hint at special circumstances where an Educational Service Agency (ESA) may be large enough to “provide organizational and functional separation” between staff providing service and staff responsible for the E-rate application and its administration:

“ESA’s in general are large enough to provide organizational and functional separation between staff acting as service providers and staff providing technology plan support and application and administration assistance. However, the ESA must be prepared to clearly show the separation of functions to USAC with appropriate documentation. Examples of such documentation include organizational flow charts, budgetary codes, and supervisory administration.”

<http://www.usac.org/sl/applicants/beforeyoubegin/esa.aspx>

8. In the absence of clear guidance, no large consortium would risk having their application disqualified to recoup a portion of its otherwise eligible costs for internally provided services. MOREnet

suggests the Commission provide clarity on what constitutes sufficient “organizational and functional separation” so that R&E and ESAs can request E-rate discounts on eligible self-provisioned services without jeopardizing the consortium application.

9. MOREnet also believes the Commission should consider relaxing the eligibility rules for R&E networks, regional optical networks and other organizations who meet narrow criteria in service of E-rate eligible entities. These criteria could include:

- a. Limit their membership and services to E-rate eligible schools and libraries as well as other Community Anchor Institutions as defined by the Broadband Technologies Opportunities Program (BTOP).
- b. Require that their primary purpose be to serve their membership.
- c. Require that they be organized as educational institutions or other non-profits already subject to public procurement rules and their members actively participate in their governance.
- d. Require that they offer substantial value-added services to eligible members which greatly increase the utility of broadband or other connectivity while lowering the costs to their membership.

IV. Funding Research and Education Networks

10. The Commission is proposing to eliminate the disparity between leasing dark and lit fiber by providing priority one support for the modulating electronics and installation necessary to light dark fiber and eliminating regulatory categories (common carrier v. non-common carrier) for E-rate supported services. NPRM at ¶¶ 71, 72. Long term IRUs and fiber builds provide a sustainable model for R&E networks to solve the connectivity and growth needs of E-rate eligible institutions for the

foreseeable future. R&E networks typically have the technical skills required to design, implement, monitor, manage and maintain a fiber network. A fiber network provides a stable, predictable, relatively fixed pricing platform which can accommodate substantial bandwidth growth with occasional one-time investments for new optical equipment. The initial costs are greater than leased circuits but the educational benefits and cost avoidance from fiber ownership or long term lease can last for decades. While fiber networks offer the greatest capability of significant growth in capacity, the network design itself provides the full Committed Information Rate (CIR) and full symmetrical access on all connections. This is vital to allow optimal performance on bandwidth demands and utilization of bandwidth funded with limited E-rate dollars.

11. Many Research and Education Networks, including MOREnet, have existing fiber or long-term IRU contracts for fiber. Networks are typically composed of several components including middle-mile and last mile infrastructure, points of presence and peering points. While the cost of fiber is typically a function of distance and availability; the number of points of presence and peering facilities drive equipment and management costs. The most significant cost to fiber is the cost of installation, particularly the costs of digging and trenching. The FCC labeled these costs as ‘Special Construction Costs’ which, under current rules, are not eligible as a leased dark fiber solution. Current rules limit the opportunity for which R&E networks could contribute to the stated goals of the ConnectEd initiative. MOREnet agrees that the Commission should eliminate the disparity in priority one special construction cost funding between dark and lit fiber.

12. Fiber typically lasts decades with few additional costs. By contrast, optical equipment needs repeated replacement or upgrade to maintain or add and increase capacity. In smaller networks, the equipment costs can easily exceed the cost of the fiber. Over the 20 year life span of the fiber IRUs,

equipment costs can easily double or triple the cost of those IRUs. Research and Education Networks that file as a consortium, as MOREnet does, usually fall well below the discount level for Priority 2 services that are funded. While the IRU fiber costs are eligible under current Priority 1 rules, the necessary equipment and management to make full use of the fiber are not. For R&E networks filing as a consortium, the cost of provisioning the fiber and managing the network as a service to consortium members is not eligible. As a result, it is typically not cost effective to establish points of presence for local schools and libraries to connect to the R&E network or peer with local exchange carriers in most communities. Therefore, MOREnet supports priority one funding for modulating electronics necessary to light leased dark fiber. MOREnet is also in favor of funding lateral fiber builds which are more cost effective when evaluated over a fixed period.

13. While current E-rate rules allow long-term contracts for fiber ownership or IRUs to be eligible for E-rate funding, the three year evaluation criteria are biased against dark fiber despite the obvious benefits. The three year evaluation period required by E-rate rules produces a false, short term benefit for leased circuits. Fiber networks provide sustainable, future proof capacity for decades; their substantial one-time costs need to be amortized and evaluated over the long term lease of the IRU or a conservative estimate of the life of the fiber asset to yield an accurate evaluation. Evaluation of long-term assets versus short term leased circuits may be an “apples to oranges” comparison, but the resulting annual costs of the two models can be compared and effectively evaluated. For example, a two mile IRU fiber build may cost \$120,000 including equipment. Over a 20 year IRU contract life, this averages to \$500 per month for near unlimited capacity. If the leased fiber option is more than \$500 per month, then the IRU fiber build is the more cost effective solution. MOREnet suggests the Commission allow applicants to evaluate fiber solution costs on the basis of the life of the solution.

V. Broadband Technologies

14. MOREnet generally agrees that fiber is the most cost-effective and future proof means of delivering high-capacity connections to community anchor institutions like schools and libraries. Historically MOREnet has accommodated growth in member bandwidth demand by 30-40% annually. Our first statewide backbone was a leased service and limited to the contracted capacity. There were significant price increases for the leased services required to meet the growing bandwidth demand. Therefore, in 2009 MOREnet invested in fiber IRUs and optical equipment because of its inherent capability to support multiple magnitude increases in capacity with significantly lower cost increases than would be encountered with the leased service. Today, bandwidth demand continues to grow and reduce the cost per megabit in the fiber solution because capacity costs increase at a much lower rate. Depending on the optical equipment deployed, increased capacity may have no increased cost at all to meet the bandwidth demand. For these reasons, fiber solutions offer the greatest cost savings for the E-rate program.

15. Where fiber is unavailable, MOREnet has begun to utilize wireless technologies as an interim strategy until fiber is available and cost-effectively priced. Point-to-point wireless supported by a fiber backbone can provide a robust infrastructure for broadband connections to schools and libraries not yet served by fiber. To meet the full Committed Information Rates (CIR) and symmetrical connections required by schools and libraries, wireless spectrum should be licensed and dedicated. Cost components for managed wireless connections include licenses, radios, tower space, power and data connections, site preparation, uninterruptible or alternate power, annual maintenance and monitoring and management services. Spectrum is limited and most educational entities relinquished their Educational Broadband Service (EBS) licenses before they realized the value of licensed and dedicated spectrum for the education community. This program is currently closed to new applicants, but has

beneficial uses where available, especially if eligible for E-rate funding. Therefore, MOREnet encourages the Commission to authorize E-rate funding for spectrum as a viable option to meet bandwidth demand when fiber is unavailable or not cost effective.

VI. Streamlining the application process

16. The Commission seeks comment on how best to streamline the application process and increase the transparency of prices for E-rate supported services. NPRM at ¶¶ 193-194. MOREnet understands the concept of price shopping in order to incentivize providers to offer their best rate. However, major assumptions of linear situations across the country have to exist for the incentive to be effective. Broadband availability, true fiber construction costs and market price vary significantly based on physical locations, state political atmosphere, and specific local needs or requirements. Providing a price sample from California makes no sense for Alaska, or even Mississippi (a one vendor award State) to Missouri (no State master contract). The gathering of information in massive detail would be necessary in order to make a fair price comparison, and it is very likely that most would not find a perfect match of circumstances in which to compare prices. The net result is more burdens on the applicant to provide documentation, longer application review time with USAC, no incentive for providers to lower rates, and no financial benefit to the applicant or the E-rate fund.

17. The Commission also seeks comments on the competitive bidding process, including how the Commission can reduce the number of E-rate recipients receiving single or no bids from service providers. NPRM at ¶¶ 202, 204. MOREnet is strongly opposed to any restriction or new burden placed on those receiving only one or no bid response for broadband or bandwidth services; it is equivalent to penalizing the already disadvantaged. A bandwidth bid resulting in one or no bid response is an indication that the market does not support competition for the requested service in that area or even

the service itself. In either case, it is no fault of the applicant seeking the service, but rather it is precisely this situation that the E-rate fund is objectively trying to resolve, namely making bandwidth access more readily available and affordable.

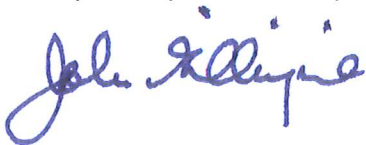
18. When procurement efforts result in no or cost-prohibitive responses, a special circumstance should be explored to allow the consortium to provide a cost-effective, eligible service and be supported by the appropriate E-rate discount. Perhaps the Commission should explore a pilot program to determine the effectiveness of such an approach.

19. The Commission seeks comment on allowing one single FCC Form 471 application for authorizing funding on a multi-year contract. NPRM ¶241, MOREnet supports the use of a single Form 471 for funding multiple years on multi-year contracts. MOREnet asks the commission to consider accepting contracts longer than the stated three years, and if desired, still implement a three year limitation of single Form 471 funding. The distinction is that legitimate contracts longer than three years should not be nullified by a rule intended to streamline the application process. As noted earlier, fiber IRU contracts are usually much longer than three years. MOREnet broadband contracts are generally five years. It is reasonable for the single Form 471 option to be limited for reasons specific to the administration of the E-rate fund. However, it is not reasonable to negate legitimate contracts for those same reasons. As an example, it is desirable for a five year contract to be funded on a single Form 471 for the first three years of the contract, and then that same five year contract be funded for the remaining two years of the contract on a second Form 471 filed in the fourth year of the contract. In this way, the applicant application burden and USAC review time is reduced from five to two in a five year period, and funding restrictions for a multi-year contract are in place for whatever reasons deemed necessary.

VII. Conclusion

20. MOREnet congratulates the Commission for the success of the E-rate program and commends the Commission for its continued efforts to improve the program. Taking on the objectives of the ConnectEd initiative will be a challenging endeavor. To that end, MOREnet believes the expertise of Research and Education Networks has been extremely beneficial for the E-rate program, and will be particularly vital in effectively achieving the bandwidth objectives of the program. The Commission is encouraged to advance the benefits of R&E networks by providing clarity on organizational and functional separation required for funding on eligible network services provisioned by the R&E network. MOREnet also urges the Commission to eliminate the disparity in priority one funding between dark and lit fiber. MOREnet supports priority one funding for special construction charges, modulating electronics and lateral fiber builds. Additionally, MOREnet suggests the Commission allow applicants to evaluate fiber solution costs on the basis of the life of the solution. When fiber is unavailable or not cost effective, MOREnet encourages the Commission to authorize E-rate funding for spectrum as a viable option. MOREnet is strongly opposed to any restriction or new burden placed on entities receiving only one or no bid for broadband services. And finally, MOREnet supports the use of a single Form 471 for funding multiple years on multi-year contracts.

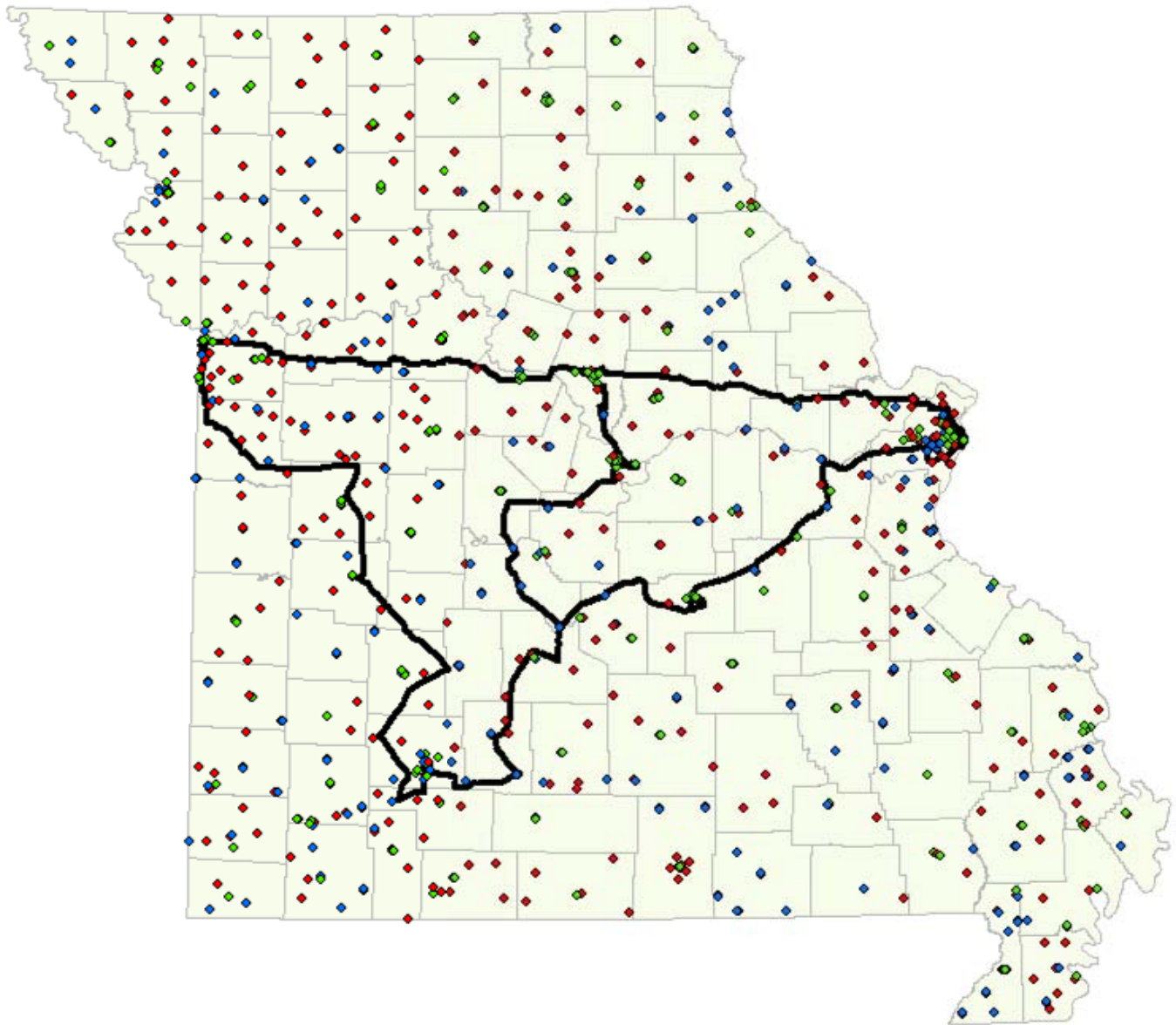
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APPENDIX A

MOREnet Circuits



- ◆ Higher Ed & Affiliates (232)
- ◆ K-12 (463)
- ◆ Libraries (248)
- Counties
- MOREnet Optical Backbone